Nicaragua - Rural Business Development Services

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Overview

Identification

COUNTRY
Nicaragua

EVALUATION TITLE
Rural Business Development Services

EVALUATION TYPE
Independent Impact Evaluation

ID NUMBER
MCC-NIC-CARTER-RBD-2012-v01

Version

VERSION DESCRIPTION
Raw data for internal use only

Overview

ABSTRACT
The project likely increased the incomes of most but not all participants. The spillover effects of change in household income was not as wide as originally anticipated. In general, we found that the program is much more effective for the high performing households. Indeed, the upper quantile, high performing households exhibit a 50% larger impact on their income in targeted activities, and their observed household living standards (as measured by per-capita consumption expenditures) increase significantly 2-3 years after joining the RBD program. In contrast, the lower quantile households show no increase in living standards, even after 3-4 years in the program.

EVALUATION METHODOLOGY
Randomization

UNITS OF ANALYSIS
Producers: those persons living on the farm who make the decision about farm's production, inputs to production

KIND OF DATA
Sample survey data [ssd]

TOPICS

Topic	Vocabulary	URI
Agriculture and Irrigation	MCC Sector	
Gender	MCC Sector	

KEYWORDS
Rural development, Small farmers

Coverage

GEOGRAPHIC COVERAGE
The project was delivered in two small districts in northwest Nicaragua: Leon and Chinadega. These two districts cover a rather small geographic coverage.

UNIVERSE

The sample list contained information about potential farmer leaders, the location of their farms, the communities where the eligible farmers could be found, and a radius of coverage within which about 30 farmers could be found (using the leader's farm as the origin). The program did not dispose of a complete list of names of potential satellite farmers. In order to get more precise information about the number and location of eligible farmers around the leader, a quasi-census of eligible farmers was carried out, using specific criteria provided by the RBD Program for each type of activity (Table 2). These criteria specified minimum and maximum farm sizes, minimum levels of farmer experience in that target crops, and also stipulated that it must be possible to reach the farm by road during all seasons. Starting at the leader's farm, the quasi-census verified the characteristics of all neighboring farmers until a sampling quota of 30 eligible farmers was reached, or until the maximum radius was reached. Using the quasi-census, 3000 farmers were identified, spread over 140 geographical units (clusters). From every list of clusters, we expected to randomly select 12 farmers.

Producers and Sponsors

PRIMARY INVESTIGATOR(S)

Name	Affiliation
Michael Carter	University of California, Davis
Patricia Toledo	Ohio University
Emilia Tjernström	University of California, Davis

FUNDING

Name	Abbreviation	Role
Millennium Challenge Corporation	MCC	

Metadata Production

METADATA PRODUCED BY

Name	Abbreviation	Affiliation	Role
Millennium Challenge Corporation	MCC		Metadata Producer

DATE OF METADATA PRODUCTION
2014-03-28

DDI DOCUMENT VERSION
Version 1 (March 2014).

DDI DOCUMENT ID
DDI-MCC-NIC-CARTER-RBD-2012-v01

MCC Compact and Program

COMPACT OR THRESHOLD
Nicaragua Compact

PROGRAM
1. Rural Business Development Services: Expand higher profit agricultural and agribusiness by providing business development services, disseminating market information, and developing improved production techniques. 2. Technical and Financial Assistance- help small and medium-size farms and agribusiness transition to higher profit activities, provide technical and financial assistance to these entreprises, including support that will directly offset certain costs of small farms. 3. Granst to improve water supply for farming and forest production: Based on watershed management actions plan, provide grants to improve the water supply for irrigation and facilitate higher value, sustinable agriculture and forestery in the upper watershed areas of the region.

MCC SECTOR
Agriculture and Irrigation (Ag & Irr)

PROGRAM LOGIC
While the program was advertised throughout the Western region, MCA identi- ed areas particularly conducive to the types

of business targeted by the program. The implementation strategy was mainly based on the identication of groups of farmers called nuclei. A nucleus was determined by the productive activity that the program would support (e.g. crops or livestock). Most of the nuclei were formed by farmers who were selected as individuals, not as part of an organization. Every nucleus was supposed to be constructed around a leader farmer, and 10 to 15 satellite farmers whose parcels should be located relatively close to the leader's land. The leader was supposed to be willing to invest more than the satellite farmers (for example, he should be willing to use part of his land to build a milk collection center that will be used by all the members in a nucleus), and to coordinate technical meetings.

PROGRAM PARTICIPANTS

The RBD Program was designed to develop business plans with land-owning farmers in select municipalities of the Western region. The program targeted four business groups: livestock and fishing, agricultural business, non-agricultural business, and forestry. In addition, the farmers had to fulfill certain requirements, determined as follows: "a small or medium size farming and livestock farmer with potential, who has and is developing a productive activity in a farm, who in his proposal of business plan is willing to contribute 70% of what he has to invest, and that the estimated internal return rate (IRR) be at least 18%." Participation in the program was subject to both administrative filters (eligibility criteria and business plan approval) and to beneficiary self-selection (eligible producers ahd to be willing to join and provide required matching investments).

Sampling

Study Population

The sample list contained information about potential farmer leaders, the location of their farms, the communities where the eligible farmers could be found, and a radius of coverage within which about 30 farmers could be found (using the leader's farm as the origin). The program did not dispose of a complete list of names of potential satellite farmers. In order to get more precise information about the number and location of eligible farmers around the leader, a quasi-census of eligible farmers was carried out, using specific criteria provided by the RBD Program for each type of activity (Table 2). These criteria specified minimum and maximum farm sizes, minimum levels of farmer experience in that target crops, and also stipulated that it must be possible to reach the farm by road during all seasons. Starting at the leader's farm, the quasi-census verified the characteristics of all neighboring farmers until a sampling quota of 30 eligible farmers was reached, or until the maximum radius was reached. Using the quasi-census, 3000 farmers were identified, spread over 140 geographical units (clusters). From every list of clusters, we expected to randomly select 12 farmers.

Sampling Procedure

The challenge of this and all impact evaluation efforts is to identify a control group that is identical to the treatment group in every way except that they have not benefitted from the intervention under evaluation.the evaluation team worked with the RBD implementation team to identify all geographic clusters that would eventually be observed RBD services. The evaluation team then selected a subset of these clusters for random assignment to either early or late treatment status. This strategy not only created a temporary conventional control group, it also randomized the duration of time in the program, a feature that will prove vital in the continuous treatment estimates presented below.In late treatment clusters, services were not initiated until approximately 18 months later, in early 2009 at the time of the midline survey. Because clusters were randomly allocated to early and late treatment conditions, we can anticipate that on average the late treatment group should function as a valid control group, identical to the early group in every way except early receipt of RBD services. The economic status of the late group in 2009 should thus be a good predictor of what the status of the early group would have been in the absence of RBD services. Both early and late treatment clusters were then surveyed again near the end of the program in 2011. Once the random assignment of early and late clusters was made, the impact evaluation team created a roster of all eligible producers in these clusters, and then randomly selected a sample of 1600 households split between early and late areas. These 1600 households were then invited to participate in the impact study, and completed a baseline survey in late 2007, just as the RBD project was beginning in the early treatment clusters. Within these clusters, 64% of the eligible households chose to participate in the RBD project. A second-round survey was applied to all 1600 households in the first quarter of 2009, just as the RBD project was rolled out in the late treatment area. While it was not clear at baseline which of the eligible households in the late treatment areas would choose to participate in the project, those households made their participation decision around the time of the second-round survey. Similar to the early treatment clusters, 57% of eligible households in late treatment clusters elected to participate. Because the timing of the surveys and project rollout allow determination of farmer type in both early and late treatment areas (participants versus non-participants), the impact evaluation has the opportunity to study impacts on both eligible households as well as impacts on participating or complier households. The evaluation here will primarily focus on the complier households as we are interested in the impact of the program on the types of self-selecting individuals who adopt it.

Deviations from Sample Design

In some cases, the number of eligible farmers within the permitted radius was insufficient for the creation of a nucleus, and these potential farmers were therefore not included in the original sample. In numerous cases, the quota of 30 farmers was difficult to reach. Combined with the fact that 4% of farmers rejected to be interviewed, and that some 10% were deemed ineligible at the moment of the baseline survey, this all resulted in slightly fewer surveys per cluster than originally planned.

Response Rate

At the end of this second sampling stage, 1600 farmers (and their households) were interviewed.There are slightly more early (treatment) farmers than late (control) farmers. Within the blocks, there is an uneven number of interviews between early and late groups, especially with the sesame activity. Some sesame areas contained fewer eligible farmers, resulting in a lower number of interviews per GU. Across departments, the largest differences are found in some bean GUs: Chinandega has twice as many bean GUs as León. This difference is mainly explained because the GUs are spread across four municipalities in Chinandega, and only two municipalities in León.

Questionnaires

Overview

While it was not clear at baseline which of the eligible households in the late treatment areas would choose to participate in the project, those households made their participation decision around the time of the second-round survey. Similar to the early treatment clusters, 57% of eligible households in late treatment clusters elected to participate. Because the timing of the surveys and project rollout allow determination of farmer type in both early and late treatment areas (participants versus non-participants), the impact evaluation has the opportunity to study impacts on both eligible households as well as impacts on participating or complier households. The evaluation here will primarily focus on the complier households as we are interested in the impact of the program on the types of self-selecting individuals who adopt it. From every list of clusters, we expected to randomly select 12 farmers. In practice, there were fewer eligible farmers than we initially assumed. In some cases, the number of eligible farmers within the permitted radius was insufficient for the creation of a nucleus, and these potential farmers were therefore not included in the original sample. In numerous cases, the quota of 30 farmers was difficult to reach. Combined with the fact that 4% of farmers rejected to be interviewed, and that some 10% were deemed ineligible at the moment of the baseline survey, this all resulted in slightly fewer surveys per cluster than originally planned.At the end of this second sampling stage, 1600 farmers (and their households) were interviewed (see Table 6). There are slightly more early (treatment) farmers than late (control) farmers. Within the blocks, there is an uneven number of interviews between early and late groups, especially with the sesame activity.

Data Collection

Data Collection Dates

Start	End	Cycle

Questionnaires

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Data Collectors

Name	Abbreviation	Affiliation
Fundación Internacional para el Desafío Económico Global	FIDEG	

Data Processing

Data Editing

Regarding the variables used to compute the aggregate expenditures, the evaluation team did the following task in the cleaning process:

1) Identification of mistyped data by finding extreme values of per capita durable and non durable aggregate expenditures growth.
2) Revision of every missing value to verify if it was a mistyped data.
3) Consistency between section 3.C, 3.CA and 3.CO to verify if there was information that was not typed.

In most cases, it was identified that the enumerator wrote an incorrect code. However, enumerators were encouraged to write observations if they had some doubt about the farmer's answer. This type of information was key for the cleaning data process.

In other cases, wrong codes of frequency or total value were evident but there was not additional information from the enumerator (e.g., a household consumes 50 pounds of sugar per day). By comparing this information with the other round survey and considering that the size of household had not changed, we concluded that household consumption was the same amount of food but the frequency or the value was not coherent.

Finally, if there was a household with only one missing value in only one round of the survey, we impute a value for this unique missing value. For example, if the missing value was a food value, we take the average of the value of the same food declared by other households living in the same municipality.

Other Processing

The Fundación Internacional para el Desafío Económico Global (FIDEG) was the firm in charge of the data collection. Data were entered using the Census and Survey Processing System software (CSPro 4.0). Additionally, the data gathering firm developed procedures to identify mistyped data. This preliminary version was edited by using SPSS statistical analysis software and provided to the evaluation team to do a deeper data checking. To date, the evaluation team has reviewed the data for completeness and internal consistency, and to determine if farmer's household follow-up was correctly done. There were 21 households in which the second interview failed because of rejection (12 households) or because it was not possible to find an adequate household member to answer the questionnaire. Follow-up of the farm -which information is concentrated in Section 6 of the questionnaire- is still under revision. However, preliminary results show that errors, such as interviewers' failure to follow procedures, should not have a significant effect on data quality. Most importantly, land tenure answers could be imprecise because most of the interviewed farmers do not have a formal possession of the farm.

Data Appraisal

No content available